Atmospheric Chemistry and Physics Discussions

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2022-414

Anonymous Referee #2

Referee comment on "Measurement report: Size distributions of urban aerosols down to 1 nm from long-term measurements" by Chenjuan Deng et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2022-414-RC2, 2022

I recommend the publication of this manuscript, but suggest the authors to address the following minor concerns.

1. line 120
Your NPF definition looks like the classification of size distribution, not NPF. It's quite different from conventional NPF definition, like Dal Maso et al. Please describe the difference and how this will affect your conclusions.

2. line 129. why was power law function used? not other function? did you try any others? What information or contribution does the function provide on nucleation mechanistic, regional, and global atmospheric models?

3. line 150-165. Is the PNSD for the time slot before, during or after NPF? how did you pick up the PNSD that you named "typical" from a large set of data? The PNSD is always changing even during a single NPF event.

4. figure 4b where is Nsub-2 curve?

5. line 245-255. is there any evidence from nanoparticle/cluster chemical composition (e.g., H2SO4, amines, organics) measurement to support the source of these sub 3 nm particles were from traffic emission? for example, how were H2SO4 monomer and dimer observed in these traffic events?